

The Scientific Dating of the Mahabharat War

By Dr.P.V.Vartak

INTRODUCTION

The Mahabharat has exercised a continuous and pervasive influence on the Indian mind for milleniums. The Mahabharat, orginally written by Sage Ved Vyas in Sanskrut, has been translated and adapted into numerous languages and has been set to a variety of interpretations. Dating back to "remote antiquity", it is still a living force in the life of the Indian masses.

Incidently, the dating of the Mahabharat War has been a matter of challenge and controversy for a century or two. European scholars have maintained that the events described in the ancient Sanskrut texts are imaginary and subsequently, the Mahabharat derived to be a fictitiou tale of a war fought between two rivalries. Starting from the so- called Aryan invasion into Bharat, the current Bharatiya chronology starts from the compilation of the Rigved in 1200 B.C., then come other Ved's, Mahaveer Jain is born, then Gautam Buddha lives around 585 B.C. and the rest follows. In the meantime, the Brahmanas, Samhi- tas, Puranas, etc. are written and the thought contained therein is well-absorbed among the Hindu minds.

Where does the Ramayan and Mahabharat fit in ? Some say that the Ramayan follows Mahabharat and some opine otherwise. In all this anarchy of Indian histography, the date of the Mahabharat (the mythical story!) ranges between 1000 B.C.to 300 B.C. Saunskrut epics were academically attacked occasion- ally - an attempt to disprove the authencity of the annals noted therein. For example, the European Indologist Maxmuller, tried the interpret the astronomical evidences to prove that the observations recorded in the Hindu scriptures are imaginary, probably because it did not match the prevelant views of European historians!

On the contrary, many Bharatiya scholars have vehemently maintained the actual occurance of the Mahabharat War. Astronomical and literary evidences or clues from the Pauranic and Vaidik texts have been deci- phered to provide a conclusive date for the Mahabharat War. The fifth century mathematician, Aryabhata, calculated the date of the Mahabharat War to be approximately 3100 B.C. from the planetary posi- tions recorded in the Mahabharat. Prof. C.V. Vaidya and Prof. Apte had derived the date to

be 3101 B.C. and Shri. Kota Venkatachalam reckoned it to be 3139 B.C. However, the astronomical data used by the above, and many other, scholars contained some errors as examined by a scholar from Pune, Dr. P.V. Vartak. Using astronomical references and variety of other sources, Dr. Vartak has derived the date of the initiation of the Mahabharat War to be 16th October 5561 B.C. This proposed date has been examined by a few scholars and has been verified. This may prove to be a breakthrough in deciding the chronology of the events in the history of Bharat (and probably the World).

In the following few posts, I have made an attempt to provide a glance at the proofs provided by Dr. Vartak in propounding the date of the very important landmark in the history of Bharat (World?), i.e., Mahabharat War. Only major points have been extracted from two sources: Dr.P.V. Vartak's Marathi book "Swayambhu" and "Scientific Dating of the Mahabharat War" in English.

INSCRIPTIONS

Some scholars rely on the various inscriptions found in the temples and elsewhere to fix the date of Mahabharat War. If there is no other alternative then this method is tolerable, otherwise it is not reliable because all the known inscriptions are dated as far back as 400 AD. Those who prepared those inscriptions were not conversant with the scientific methods available now in the modern Science Age. So, why should we depend on the conjectures of the ancient people? Why not use scientific methodology to come to the conclusion ourselves? I will prefer the use of the modern scientific ways to fix the date of Mahabharat War rather than to rely on the Inscriptions which are vague and inconclusive. Let us examine two famous inscriptions always quoted by the scholars.

AIHOLE INSCRIPTION

All the scholars have relied on this inscription found in the Jain Temple at Aihole prepared by one Chalukya King Pulakeshi. It says, according to scholars, that the temple was constructed in $30+3000+700+5 = 3735$ years, after the Bharat War and $50+6+500 = 556$ years of Shaka era in Kali era. Today Shaka era is 1910. Hence $1910-556 = 1354$ years ago the temple was constructed. Thus the year of inscribing this note is 634 AD. At this time 3735 years had passed from the Bharat War. So the date of the War comes to 3101 BC. This is also the date of Kali Yuga Commencement. Naturally, it is evident that relying on the beginning of Kaliyuga Era and holding that the War took place just before the commencement of Kaliyuga, this inscription is prepared. It is obvious from the Mahabharat that the War did not happen near about the beginning of Kaliyuga. (I have considered this problem fully at a later stage.) If we can see that the inscription is prepared by relying on some false assumption, we have to neglect it because it has no value as an evidence. Moreover the interpretation done by the scholars is doubtful because they have not considered the clauses separately and they held Bharat War and Kali Era as one and the same.

The verse inscribed is :

Trinshatsu Trisahasreshu Bhaaratdahavaditaha | Saptabda Shatayukteshu
Gateshwabdeshu Panchasu | Panchashatasu Kalaukale Shatasu Panchashatsu cha |
Samatsu Samatitasu Shakaanamapi Bhoobhujaam ||

I would like to interpret the verse considering the clauses of the verse. It says "3030 years from the Bharat War" in the first line, (Trinshatsu Trisahasreshu Bhaaratdahavaaditaha) where the first clause of the sentence ends. in the second line, the second clause starts and runs upto the middle of the third line thus (Saptabda.....Kalaukale) This means $700+5+50 = 755$ years passed in the Kali Era. The remaining third clause is (Shatasu

Here the verse does not specifically say the Shalivahan Shaka but Scholars have taken granted that it is Shalivahan Shaka without any base or reasoning. The verse may have mentioned some other Shaka kings from ancient era. So we neglect the doubtful part of the Shaka counting which is useless and adhere to the Kali era expressly mentioned. It is clear from the former portion of the verse that 3030 years passed from the Bharat War and 755 years passed from Kali Era. Kali Era started from 3101 BC. 755 years have passed so $3101-755 = 2346$ BC is the year when 3030 years had passed from the Bharat War. So $2346+3030 = 5376$ BC appears to be the date of Bharat War.

HISSE BORALA INSCRIPTION OF DEVA SENA

This inscription is of 5th century AD and scholars hold that it throws light on the time of Mahabharat War. It states, that Saptarshis were in Uttara at the time of this inscription. Scholars hold that Saptarshis were in Magha at the time of Yudhishtira because Varahmihira has stated so in Brihat-Samhita. Scholars also hold that Yudhishtira's time is 3137 BC. Saptarshis stay in one Nakshtra for 100 years, and there are 27 Nakshatras. Hence Saptarshis would be again in Magha 2700 years later during 4th century BC. From here if we count upto 5th century AD there fall eight Nakshatras. Hence in the 5th century AD, Saptarshis should be in Anuradha and not Uttara. From Anuradha to Uttara Ashadha there is a difference of five Nakshatras, while from Anuradha to Uttara Phalguni there is a difference of six Nakshatras. So it is quite evident that at the time of Yudhishtira Saptarshis were not in Magha as held by the scholars. Here I have shown a mistake of five to six hundreds of years. Moreover, there are three 'Uttaras' and the inscription has not stated specifically which Uttara it denotes. Thus this source is unreliable and should be rejected.

I have considered Saptarshi Reckoning in details at a later stage on page 11. While going to examine the sources scientifically, I shall give the honour of the first place to Astronomy. One may question that how far Astronomy was advanced in those olden days? I say affirmatively that Astronomy was far advanced in the ancient times, and the ancient Indian sages had perfected the science of time measurement relying on Astronomy.

GREEK RECORDS

1. "The Greek Ambassador Magasthenis has recorded that 138 generations have passed between Krishna and Chandragupta Maurya. Many scholars have taken this evidence, but taking only 20 years per generation they fixed the date of Krishna as 2760 years before Chandragupta. But this is wrong because the record is not of ordinary people to take 20 years per generation. In the matter of general public, one says that when a son is born a new generation starts. But in the case of kings, the name is included in the list of Royal Dynasty only after his coronation to the throne. Hence, one cannot allot 20 years to one king. We have to find out the average per king

by calculating on various Indian Dynasties. I have considered 60 kings from various dynasties and calculated the average of each king as 35 years. Here is a list of some of important kings with the no. of years ruling.

Chandragupta Mourya	330-298 B.C.	32 years.	Bindusar	
298-273 B.C.	25 years.	Ashok	273-232 B.C.	41
years.	Pushyamitra Shunga	190-149 B.C.	41 years.	
Chandragupta Gupta	308-330 A.D.	22 years.	Samudragupta	
330-375 A.D.	45 years.	Vikramaditya	375-414 A.D.	39
years.	Kumargupta	414-455 A.D.	41 years.	Harsha
606-647 A.D.	41 years.			---
-----			327 years.	The
average is $327/9 = 36.3$ years.				

Multiplying 138 generations by 35 years we get 4830 years before Chandragupta Mourya. Adding Chandragupta's date 320 B.C. to 4830 we get 5150 B.C. as the date of Lord Krishna.

2. Megasthenis, according to Arian, has written that between Sandrocottus to Dianisaum 153 generations and 6042 years passed. From this data, we get the average of 39.5 years per king. From this we can calculate 5451 years for 138 generations. So Krishna must have been around 5771 B.C.

3. Pliny gives 154 generations and 6451 years between Bacchus and Alexander. This Bacchus may be the famous Bakasura who was killed by Bhimasena. This period comes to about 6771 years B.C.

Thus Mahabharat period ranges from 5000 B.C. to 6000 B.C.

SHRIMAD BHAGWAT

a) Bhagwat gives 28 Kaurava kings from Parikshit to Kshemaka. "From Kshemaka, the Pandava Dynasty will end in Kaliyug, and Magadha Dynasty will start." [Bhagwad 9-22-45]. This implies that the Pandava kings ruled before the advent of Kaliyug, i.e., before 3101 B.C and Magadha dynasty will not super-impose the Pandava Dynasty.

b) Further it is stated in Bhagwat that after 28 Kaurava kings, Magadha Dynasty would rule and 22 Magadha kings would govern for 1000 years. Here it is given a

average of 1000 years for 22 kings. It can be found that the 28 Kaurava kings would have ruled for 1273 years and then Magadha Dynasty started with King Sahadeva, whose son was Somapi. On the other hand, Maghasandhi was the son of Sahadeva and the grand-son of Jarasandha [Ashwamedh-82]. many scholars have neglected this fact and have assumed that this Sahadeva fought in the Mahabharat War and was the son of Jarasandha.

c) Ripunjaya is the last king in the list of 22 Magadhas. But Bhagwat 12.1.2-4 mentions that Puranjaya will be the last king who will be killed by his minister Shunak. It is to be noted that there is no mention of the kings between Ripunjaya and Puranjaya. People have wrongly taken the two names as that of one and the same person, without any evidence.

d) Bhagwat 12.1.2-4 state that Shunak would coronate his son Pradyota as the King and later five Kings would rule for 138 years. After this Pradyota Dynasty, Shishunga Kings, 10 in number, would rule for 360 years. Thereafter 9 Nandas would rule for 100 years. Nanda would be destroyed by a Brahmin and Chandragupta would be enthroned. We know that Chandragupta Maurya ascended the throne in 324 B.C. So we can thus calculate backwards:

9	Nandas	100	years	10	Shishungas	360	years	5
Pradyotas	138	years	22	Magadhas	1000	years	28	Kauravas
1273	years-----			-----	74	Kings		2871
								years

We find here only 74 kings, but Megasthenes tells us about 138 kings. So 138-74=64 kings are missing. These may be from the period between Ripunjaya and Puranjaya. Thus calculating from the data of 74 kings who ruled for 2871 years, we get a period of 2496 years for 64 kings. Adding the two we get 5367 years for 138 kings. This is preceding Chandragupta's time, who came to throne in 324 B.C. Hence, 324+5367 = 5691 B.C. is the approximate date of Parikshit.

YUDHISHTIRA ERA AND KALIYUG

Scholars accept the date of the Mahabharat War to be 3100 B.C. which also happens to the initiation of the Yudhisthira Era. But this Era, is mentioned nowhere in the Mahabharat text itself! At the time of Aswamedha of Yudhisthira, Vyas has given descriptions in minute detail like collection of "Sruva", formation of wells and lakes,

but never has written even a word about, such an important event, as the beginning of the Yudhisthira Era.

Mahabharat also never mentions anything about the beginning of the Kaliyug, even at the time of Krishna's death. Mahabharat Adiparva 2.13 states that the War took place in the interphase ("Antare") of the Dwapaar and Kali Eras. Thus it makes it clear that the evening of the Dwapaar has not yet ended and the Kaliyug had not started when the War took place.

SAPTARISHIS

Bhagwat states at 12.2.27-32 that Saptarishis stay 100 years in one Nakshatra. At the time of King Parikshit, the Saptarishis were in Magha. When they proceeded to Purvashadha, Kali would start. There are 11 Nakshatras from Magha to Purvashadha. Hence it is seen that Shukacharya tells Parikshit that after 1100 years Kaliyug will start. Kaliyug started at 3101 B.C. Hence $3101 + 1100 = 4201$ B.C. is the date of Parikshit.

Other references from Shrimad Bhagwat points quite closely to the same year as above.

But who is this Parikshit ? Is he the son of Abhimanyu ? No. A minute observation of this reveals that the above is not Abhimanyu's son because Bhagwat is told to this Parikshit. On the other hand, Mahabharat is told to Janamejaya. In the Mahabharat, Parikshit's death has been recorded. Hence it is evident that Mahabharat was written and published after the death of Parikshit, the son of Abhimanyu. Bhagwat is written after Mahabharat according to the Bhagawat itself. This Bhagwat is told to some Parikshit. How can this Parikshit be the son of Abhimanyu who died before the Mahabharat writing ? So this Parikshit appears to be somebody else than Abhimanyu's son.

EQUINOX

Mahabharat mentions the ancient tradition as 'Shravanadini Nakshatrani', i.e., Shravan Nakshatra was given the first place in the Nakshatra- cycle (Adi-71/34 and Ashvamedh 44/2) Vishvamitra started counting the Nakshatras from Shravan when he created 'Prati Srushti'. He was angry with the old customs. So he started some new customs. Before Vishvamitra's time Nakshatras were counted from the one which was occupied by the sun on the Vernal Equinox. Vishvamitra changed this fashion and used diagonally opposite point i.e. Autumnal Equinox to list the Nakshatras. He gave first place to Shravan which was at the Autumnal Equinox then. The period of Shravan Nakshatra on autumnal equinox is from 6920 to 7880 years B.C. This was Vishvamitra's period at the end of Treta yuga. Mahabharat War took place at the end of Dwapar yuga. Subtracting the span of Dwapar Yuga of 2400 years we get $7880 - 2400 = 5480$ B.C. as the date of Mahabharat War.

ASTROLOGY

Some scholars rely on the horoscope of Lord Krishna to calculate his birth-date so as to establish the period of Mahabharat. But they do not realise that the horoscope is a forged one, prepared many thousand years after Krishna's death. Mahabharat Bhagvat and Vishnu purana have not given the planet positions at the time of Krishna's birth. It is well-known and is recorded in many scriptures that Krishna was born in a jail, then who could have casted his horoscope? Moreover Krishna was not a prince so nobody would have casted his horoscope. Hence it is not wise to rely on the horoscope. It is prepared recently by considering the characteristics of Krishna and so is useless to fix the birth-date.

Mr. G.S. Sampath Iyengar and Mr. G.S. Sheshagiri have fixed the birth-date of Krishna as 27th July 3112 BC. 'The horoscope shows Lagna and Moon 52 deg. 15' Rohini, Jupiter 91 deg. 16' Punarvasu, Sun 148 deg. 15' Uttara Phalguni, Mercury 172 deg. 35' Hasta, Venus 180 deg. 15' Chitra, Saturn 209 deg. 57' Vishakha, Mars 270 deg. 1' Uttara Ashadha Rahu, 160 deg. 1'.

At present on 27th July 1979 the Sun was at 99 deg. 57', while at Krishna's birth, according to their opinion, the sun was at 148 deg. 15'. The difference is 48 deg. 18'. This shows that the Sun has receded back by 48 deg. 18' due to the precession at the

rate of 72 years per degree. multiplying 48 deg. 18' by 72 we get 3456 years. This shows that Krishna was born 3456 years ago or subtracting 1979 from it we can say that Krishna was born during 1477 BC. Thus 3112 BC is found to be wrong. We cannot accept such a wrong date derived from a manipulated borscope. (This horoscope is printed in "The Age of Bharat War" on page 241-Publisher, Motilal Banarasidas 1979).

ARCHEAOLGY

In 1971, when I hinted at the date of Mahabharat war as 5500 years BC, Archealogists frowned at me saying it as impossible because no cul- ture was found in India dating so much back. But now evidences are pouring in Archeaology itself showing cultures in India upto 30000 to 40000 years BC. Padmashri Late Mr. V.S. Wakankar has dated the paint- ings in the caves of Bhimbetaka of Madhya Pradesh to about 40000 BC.

Recently Dr. S.B. Rao, Emeritus Scientist of the National Institute of Oceanography, Dona Paula, Goa, 403004, has discovered under the sea, Dwaraka and dated it as between 5000 to 6000 BC. This news has been published by all the leading newspapers on 22th October 1988.

Motilal Banarasidas News Letter October 1988 gives a news on page 6 under the heading "50,000 year old Relics" as follows:

Spectacular culture and physical relics dating back to 50,000 years BC have been excavated from the Central Narmada Valley in Madhya Pradesh. A team of Anthropological survey of India recently con- ducted the excavation. It explored sites in two districts Sebore and Hoshangabad.

In my book "Vastava Ramayan" I have shown the presence of culture in India as far back as 72000 years B.C. This recent news points to that ancient period. I am sure after some time Arecheaology may get evi- dence to show the presence of culture in India 72000 BC.

In Vastava Ramayan I have shown that Bali, the demon king went to south America during 17000 BC when the vernal equinox was at Moola Nakshatra. MLBD News

letter Oct. 1988 gives a news thus :- "Dravidians in America" - According to a press report the Brazilian nuclear physicist and researcher Arysio Nunes dos Santos holds that the Dravidians of South India reached America much before Christopher Columbus.

Mr. Nunes dos Santos, of the Federal University of Minas Gerais maintains that the Dravidians colonised a vast South American region 11000 years before the Europeans reached the new world. Vestiges of the Dravidian presence in America, he says, include the strange phonetics of Gourani, Paraguay's national language. Moreover Bananas, Pine Apple, Coconut and Cotton, all grown in India could have been taken to America by those navigators.

THE EXACT DATE OF MAHABHARAT WAR 16TH OCTOBER 5561 YEAR B.C.

Harivansh (Vishnu Purana A. 5) states that when Nanda carried Krishna to Gokul on Shravan Vadya Navami day, there was dry cow-dung spread all over the ground and trees were cut down. The presence of Dry Cowdung all over in Gokul indicates the presence of Summer in the month of Shravan. Trees are usually cut down in Summer to be used as fuel in the rainy season. The seasons move one month backwards in two thousand years. Today the rainy season starts in Jeshtha but two thousand years ago, at the time of Kalidas, rainy season used to start in Ashadha. At the time of Krishna's birth the Summer was in the month of Shravan while today it is in Vaishakha. Thus the summer is shifted by four months, hence Krishna's period comes to $4 \times 2000 = 8000$ years ago approximately. This means about 6000 years B.C., the same period we have seen above.

At the time of Mahabharat, the Vernal Equinox was at Punarvasu. Next to Punarvasu is Pushya Nakshtra. Vyas used "Pushyadi Ganana" for his Sayan method, and called Nirayan Pushya as Sayan Ashvini. He shifted the names of further Sayan Nakshtras accordingly. At that time Winter Solstice was on Revati, so Vyas gave the next Nakshatra Ashvini the first place in the Nirayan list of Nakshatras. Thus he used Ashvinyadi Ganana for the Nirayan method. Using at times Sayan names and at times Nirayan names of the Nakshatras, Vyas prepared the riddles. By the clue that Nirayan Pushya means Sayan Ashvini, it is seen that Nirayan names of Nakshatras are eight Nakshatras ahead of the Sayan names Thus the Saturn in Nirayan Purva, and Sayan

Rohini, Jupiter was in Nirayan Shravan, and Sayan Swati (near Vishakha), while the Mars was in Nirayan Anuradha, and Sayan Magha, Rahu was between Chitra and Swati, by Sayan way means it was in Nirayana. Uttara Ashadha (8 Nakshtras ahead). From these positions of the major planets we can calculate the exact date. My procedure is as follows:

I found out that on 5th May 1950, the Saturn was in Purva Phalguni. From 1950 I deducted 29.45 years to get the year 1920 when the Saturn was again in Purva. In this way I prepared a vertical column of the years when the Saturn was in Purva. Similarly, I prepared vertical columns of the years when the Jupiter was in Shravan and Rahu in Uttara Ashadha. Then I searched horizontally to find out the year common in all the three columns. It was 5561-62 B.C. when all the three great planets were at the required places. Then I proceeded for the detailed calculations.

Bhisma expired at the onset of Uttarayan i.e. on 22nd December. This is a fixed point according to the modern Scientific Calendar. He was on the arrow-bed for 58 nights and he had fought for ten days. Hence 68 days earlier than 22nd December the War had started. This shows that the War started on 16th October. We have to calculate the planetary positions of 16th October 5561 B.C.

SATURN

Encyclopedia of Astronomy by Larousse states that one rotation of Saturn takes 26 years and 166 days. One year means 365.25 days. So the Saturn's round takes 29.4544832 years.

5th May 1950, Saturn conjugated with Purva. We have to see its position in 5561 years B.C. $5561 + 1950 = 7511$ years. 7511 divided by 29.4544832 gives 255.00362 rounds. This means that Saturn completed 255 rounds and has gone ahead by 0.00362 or 1.3 degrees. Hence Saturn was in conjugation with Purva on 5th May 5561 B.C. On 16th October' 5562nd B.C. i.e. 164 days later it must have travelled (0.00362×164) degrees (daily pace) multiplied by 164 days \Rightarrow 5.87 degrees. So Saturn was at 141 degrees or in Purva Nakshatra.

In October 1962, Saturn was at 281 dgrs. $1962 + 5561 = 7523$ years. 7523 divided by 29.4544832 gives 255.41103 turns. After completing 255 full turns, Saturn has gone

back by 0.411003 turn i.e. 148 dgrs. $281 - 148 = 133$ dgrs. This was the position of Saturn in Purva.

Calculating from 1931 or 1989 also Saturn appears at 141 dgrs. in Purva. Thus on 16th of October 5562nd B.C. Saturn was in Purva as told by Vyas in Mahabharat.

RAHU

Rahu takes 18.5992 years per rotation. It was at 132 dgrs. on 16th Oct. 1979. $1979 + 5561 = 7540$, divided by 18.5992 gives 405.39378 turns. 0.39378 turns means 141.7 dgrs. Rahu always goes in reverse direction. We have to go in the past, so adding 141.7 to original 132 we get 273 dgrs. This is Uttarashadha where Rahu was situated (by Nirayan method).

Calculations from 1989, 1962 and 1893 confirm Rahu in Uttara Ashadha.

JUPITER

Jupiter takes 11.863013 years per rotation. On 16th October 1979, it was at 129 dgrs. $1979 + 5561 = 7540$. 7540 divided by 11.863013 gives 635.58892 turns. 0.58892 turn means 212 dgrs. So Jupiter was 212 dgrs behind the original position. $129 - 212 = -83$. -83 means $360 - 83 = 277$ degree 277 dgrs is the position of the star of Shravan. So Jupiter was in conjunction with Shravan. The span of Shravan is 280 deg. to 293 deg.

Calculations from 1989, 1932 and 1977 show Jupiter in 285 and 281 degrees or in the zone of Shravan. This confirms the position told by Vyas.

MARS

Mars takes 1.88089 years per rotation. On 16th October 1979, Mars was at 108 dgrs. $1979 + 5561 = 7540$ yrs. 7540 divided by 1.88089 gives 4008.7405 turns. 0.7405 turns means 266 dgrs., Mars was 266 dgrs behind the original position of 108 deg. $108 - 266 = -158$. $360 - 158 = 202$ deg. This is just beyond the star of Vishakha which is at 200 dgrs. Though in Vishakha-zone Mars has crossed the Star of Vishakha and intends to go in Anuradha, so the description of Vyas as "Anurad- ham Prarthayate" that it requests or appeals Anuradha, appears to be correct.

Calculations from 1962 and 1900 show Mars at 206 and 208 dgrs and therefore though in Vishakha, it can be called as appealing Anuradha "Anuradham Prarthayate". Thus it is seen that Vyas has used tricky but correct terms. He has not written any false statement because he was the Truth-abiding Sage.

HELIOCENTRIC AND GEOCENTRIC

Here an expert may raise a question whether I have used Heliocentric method or Geocentric method. I make it clear here that I have used the Heliocentric method that means I have considered the rotations of planets around the Sun. But after fixing the position of the planet around the Sun I have also seen where that planet will be seen from the earth.

I would like the scholars to consider one more point here. When I say that an insect is sitting near one o' clock position on your watch or clock, one may think that the insect is between 12 and 1 while other may think that it is between 1 and 2. So the span to find that insect is from 12 to 2. Similarly Vyas has mentioned the Nakshatra in the vicinity of the planet and therefore we have a scope of one Nakshatra on either side to find out the planet. Thus if our answer is between +13 deg. and -13 deg. from the given position we are successful. In my calculations I have achieved the perfect positions, but by chance, somebody gets a different position he is requested to consider a span of ± 13 degrees. The positions given by other scholars are far away than the positions recorded by Vyas, so they are not acceptable.

I request the scholars, to be careful while doing calculations not to take a retrograde position of the present planet, because that may give a false position. Please note that all the planets become retro- grade only apparently when our earth is approaching them. We need not consider their retrograde motion each year because their rotational periods around the Sun are fixed and in that they are seen retrograde from the earth apparently. We have to see if the last position of the planet is retrograde. This can be done easily by considering the position of the Sun and planet. Any external planet becomes retrograde when it is in the house from 5th to 9th from the Sun.

LEAP YEAR

Please note that i have taken 365.25 days for a solar year. It covers the general leap years, but it does not take into account the leap years abandoned at centuries. At the interval of 400 years leap years are taken according to the modern scientific calendar. If these cen- tury years are considered, there may be an error of 50 days in 7500 years duration. As for dates these 50 days are automatically accounted for because we have taken the winter solstice as fixed on 22nd December, and it is referred by Vyas, while describing Bhishma's death. As far as the planets like Saturn, Rahu and Jupiter are con- cerned 50 days are immaterial because in 50 days the Saturn will move only 1.6 deg. while Jupiter 4.1 deg. as an average. Hence their error is negligible.

Now, we have seen that all the four important planets satisfy their positions as told by Vyas on 16th October 5562nd B.C. Hence we have no other way but to accept this date as the exact date of Mahabharat War.

Please note that, so far, not a single Scholar has shown a date with the planetary positions satisfying the description by Vyas in Mahabharat. Late Mr. C. V. Vaidya and Prof. Apte show 3102 B.C., but their Mars is in Ashadha, Jupiter is in Revati, Saturn in Shatataraka and Rahu in Jeshtha. Prof. K. Shrinivasraghavan, Mr. Sam-pat Ayyangar and Sheshagiri show 3067 B.C. but they put Jupiter and Saturn in Rohini and Sun, Rahu, Mars in Jeshtha. Garga, Varahmihir and Tarangini show 2526 Before Shaka i.e. 2449 B.C. But their Mars comes in Dhanishtha, Jupiter and Saturn in Bharani and Rahu in Hasta. P.C. Sengupta gives 2448 with Saturn 356 deg., Jupiter 8 deg., Mars 157 deg., Venus 200 deg., Sun 200 deg., (Ancient Indian chronology" Calcutta University). The Western scholars as well as Romeshchandra Datta and S. B. Roy show 1424 B.C. but their Saturn is in Shata- taraka, Jupiter in Chitra, Rahu in Purva and Sun in Anuradha with no eclipse. Billandi Ayer shows 1193 years B.C. but his Mars comes in Mula, Jupiter in Purva Bhadrapada, Saturn in Purva Ashadha and Rahu in Punarvasu. At 900 B.C. as is proposed by many other scholars, Jupiter comes in Mula, Rahu in Vishakha and Saturn in Jeshtha. Thus not a single scholar could corroborate his date with the facts written by Vyas. Hence, their dates have to be dismissed. (C. V. Vaidya's Upasamhar page 94." Age of Mahabharat War").

I have shown all the planetary positions correct to the description of Mahabharat. In addition I have shown that the seasons tally with my date, and the seasons never tally with other dates. I have solved all the planetary riddles from Mahabharat which nobody could dare. So 16th October 5562nd BC. is the exact date of the first day of the Mahabharat War. At the beginning of the War, Vyas promised Dhrutarashtra that he will write history of the Kauravas; so most probably Vyas must have written the Astronomical data immediately.

URANUS (known to Vyas in 5561 B.C)

All the planets, viz., Sun, Moon, Mars, Jupiter, Venus, Saturn and Rahu show correct positions mentioned in the Mahabharat on 16th December 5561 B.C. This must be the exact date of the Mahabharat War. After pin-pointing the exact date, it struck to me that the three additional planets mentioned with positions by Vyas, may be Uranus, Neptune and Pluto. Vyas has named them as Shveta, Shyama and Teevra. Let us see if the conjecture is correct. We have to prove this with the help of Mathematics, because we have to go scientifically.

Vishesheena hi Vaarshneya Chitraam Pidayate Grahah....[10-Udyog.143]
Shevto- grahastatha Chitraam Samitikryamya Tishthati....[12-Bheeshma.3]

In- these two stanzas, Vyas states that some greenish white (Shveta) planet has crossed Chitra. This means that the planet was in Swati (or Vishakha, because Chitra and Swati are close together). This is the Sayan position hence Nirayan position is eight Nakshatras ahead in Shravan (or Dhanishtha). Neelakantha calls this "Mahapata" which means having greater orbit. Greater orbit indicates a planet beyond Saturn. Hence I assumed Shveta to be Uranus. Let us calculate and see if this true.

In October 1979, Uranus was at 206 degrees. Uranus takes 84.01 years per rotation. $1979 + 5561 = 7540$. $7540/84.01 = 89.75122$ turns. 0.75122 rotation means 270.4392 degrees. $206-270 = -64 = 296$ degrees. This comes in the zone of Dhanishtha, but the star of Dhanishtha is at 297 degrees, so the position given by Vyas is confirmed. Hence Shveta must be Uranus.

In October 1883, Uranus was at 151 degrees. $1883 + 5561 = 7444$ years. $7444/84.01 = 88.608498$ rotations. 0.608498 turn means 219 degrees. $151-219 = -68 = 292$ degrees. This is Shravan Nakshatra. So Uranus was in Shravan during Mahabharat War as stated by Vyas under the name of "Shveta".

1930 calculations show Uranus to be at 292.54 degrees or Shravan. Thus our mathematics proves that Vyas has given correct position of Uranus under the name of Shveta. This proves that Vyas had the knowledge of Uranus under the name of Shveta, supposed to have recently discovered by Herschel in 1781. Shveta means greenish white. Uranus is actually greenish white in colour. So Vyas must have seen Uranus with this own eyes. Uranus is of 6th magnitude and is visible to the naked eye according to the modern science.

Neelakantha of 17th century also had the knowledge of Uranus or Shveta. He writes in his commentary on Mahabharat (Udyog 143) that Shveta, or Mahapata was a famous planet in the Astronomical science of India. Neelakantha was about 100 years before Herschel, who supposedly discovered Uranus. So we can conclude that one hundred before Herschel, Uranus was known to the Indian Astronomers and Vyas had discovered it at or before 5561 year B.C.

NEPTUNE (was known to Vyas in 5561 B.C.)

In 1781 A.D., Herschel discovered Uranus; but its calculated positions never corroborated with the actual positions. So the experts thought of another planet beyond Uranus. They fixed its position by mathematics, and at that site, it was discovered by German Astronomers in 1846 A.D. I have found that Neptune is also mentioned by Vyas in Mahabharat, under the name of "Shyama".

Shukrahah Prosthapade Poorve Samaruhya Virochate Uttare tu Parikramya Sahitah Samudikshyate....[15-Bheeshma.- 3] Shyamograhah Prajwalitah Sadhooma iva Pavakah Aaindram Tejaswi Naksha- tram Jyesthaam Aakramya Tishthati...[16-Bheeshma.3]

Here Vyas says that there was some luminary with Venus in Poorva Bhadrapada. He adds further that a bluish white (Shyama) planet was in Jyeshtha and it was smoky (Sadhoom). Saayan Jyeshtha means Nirayan Poorva Bhadrapada, so this is the description of one and the same planet named by Vyas as Shyama. Neelkantha calls it "Parigha" in his commentary on Mahabharat. Parigha means circumference, so this planet may be at the circumference of our solar system.; and so may be Neptune. Let us see by Mathematics if this statement is true. We will determine the position of Neptune on 16th December 5561 B.C.

Neptune takes 164.78 years per rotation. It was at 234 degrees in 1979. $1979 + 5561 = 7540$ years. 7540 divided by 164.78 gives 45.75798 rotations. 0.75798 turn means 272.87 degrees. $234 - 272.87 = -38.87 = 321.13$ degrees. This is the site of Poorva Bhadrapada. So Neptune was in Poorva-Bhadrapada during 5561 B.C.

In 1948, Neptune was at 172 degrees. $1948 + 5561 = 7509$. $7509/164.78$ gives 45.56985 turns. 0.56985 turn means 205 degrees. $172 - 205 = -33 = 360 - 33 = 327$ deg. This is the zone of Poorva Bhadrapada.

In 1879, Neptune was at 20 degrees. $1879 + 5561 = 7440$ years. 7440 divided by 164.78 gives 45.15111 turns. 0.15111 turn means 54.39 deg. $20 - 54.39 = -34.39 = 360 - 34.39 = 325.61$ degrees. This is Poorva- Bhadrapada.

Thus the position of Shyama or Parigha is factually proved in the case of Neptune. Thus, we conclude that Vyas did know Neptune too. Vyas might have got his knowledge by Yogic Power or by Mathematics or by using telescopic lenses. Mathematics was far advanced then, that is why ancient Indian sages fixed the rate of precession of Equinoxes accurately. Even the world famous scientist Gamov praised the sages for their remarkable work in Mathematics. So could have mathematically calculated the position of Shyama or Neptune.

Mirrors are mentioned in the Mahabharat. So lenses too might have been present at that time. They had Microscopic Vision (Shanti A. 15,308). As microscopic vision was present, there might be telescopes too. Planets can be seen with mirrors as well as lenses. Vyas must have "seen" Neptune; its proof lies in the fact that he says that it is bluish white (Shyama). Neptune is, in fact, bluish white in colour. Hence we conclude that Neptune was known to Vyas in 5561 B.C.

PLUTO (was also known to Vyas in 5561 B.C)

Krittikaam Peedayan Teekshnaihi Nakshatram.....[30-Bheeshma.3-]

Vyas states that there was one Nakshatra, i.e, some immobile liminary troubling Krittika (Pleides) with its sharp rays. This "star" in Krit- tika must have been some "planet". It must have been stationary for many years, that is why Vyas called it Nakshatra which means a thing that does not move according to Mahabharat itself [Na Ksharati Iti Makshatram].

Hence the Nakshatra was a planet moving very slowly like pluto which takes nine years to cross one Nakshatra of 13 degrees. My assumption that this Nakshatra was Pluto gets confirmed by B.O.R.I (Bhandarkar Oriental Research Institute?) Edition which states thus :

Krittikasu Grahasteetro Nakshatre Prathame Jvalan..... [26- Bhishma.3]

Some editions mention 'Grahasteekshnah'. Thus Teevra, Teekshana and Nakshatra are the names of one and the same planet (graha) which was in Krittika in 5561 B.C. Let us see if Vyas has given these names to Pluto and if Pluto was in Krittika. It is stated that Krittika was troubled with sharp rays by that planet - this indicates that it was Nirayan Krittika.

Pluto was at 175 degrees in 1979. It takes 248 years per rotation. $1979 + 5561 = 7540$ years. 7540 divided by 248 gives 30.403223 turns. 0.403223 turn means 145 degrees. $175 - 145 = 30$ degrees. This is the site of Krittika. Thus it is proved beyond doubt that Vyas has mentioned the position of Pluto, which was discovered to the modern world in 1930. Vyas could have used his Yogic Vision or mathematical brain or a lens or some other device to discover Teevra, Teekshna' or Nakshatra or Pluto.

Thus all the three so-called 'New' planets are discovered from Mahabharat. It is usually held that before the discovery of Herschel in 1781 AD, only five planets were known to the world. This belief is wrong because Vyas has mentioned 'seven Great planets', three times in Mahabharat.

Deeptyamanascha Sampetuhu Divi Sapta Mahagrahah....[2-Bhishma.17]

This stanza states that the seven great planets were brilliant and shining; so Rahu and Ketu are out of question. Rahu and Ketu are described as Graha' 23 meaning Nodal points. (Parus means a node). Evidently Rahu and Ketu are not included in these seven great planets. The Moon also is not included, because it was not visible on that day of Amavasya with Solar Eclipse. From the positions discovered by me and given

by Vyas it is seen that Mars, Sun, Mercury, Jupiter, Uranus, Venus and Neptune were the seven great planets accumulated in a small field extending from Anuradha to Purva Bhadrapada. So they appeared to Ved-Vyas as colliding with each other, during total solar eclipse.

Nissaranto Vyadrushanta Suryaata Sapta Mahagrahah....[4-Karna 37].

This stanza clearly states that these seven great planets were 'seen' moving away from the Sun. As these are 'seen', Rahu and Ketu are out of question. This is the statement of sixteenth day of the War, naturally the Moon has moved away from the Sun. Hence, Moon, Mars, Mercury, Jupiter, Uranus, Venus and Neptune are the seven great planets mentioned by Vyas.

Praja Samharane Rajan Somam Sapta grahah Iva.....[22-Drona 37].

Here again seven planets are mentioned, excluding the Moon.

Even if we do not consider the planetary positions, from the above three stanzas, it is clear that seven planets are mentioned which do not include the Sun, Moon, Rahu and Ketu. Naturally the conclusion is inevitable that Vyas did know Uranus (Shveta) and Neptune (Shyama) as planets.

If they were known from 5561 years B.C. then why they got forgotten ? The answer is simple, that these two planets, Uranus and Neptune were not useful in predicting the future of a person. So they lost importance and in the course of time they were totally forgotten. But, in any case, Neelakantha from 17th century knew these two planets very well. Neelakantha is about a hundred years ancient than Herschel, and he writes that Mahapata (Uranus) is a famous planet in the Astronomical science of India. He also mentions the planet 'Parigha' i.e. Neptune. 22 So both were known in India, at least one Hundred years before Herschel. Vyas is 7343 years ancient than Herschel, but still he knew all the three planets Uranus, Neptune and Pluto.

ADDITIONAL EVIDENCE

Kshaya or Vishvaghata Paksha

A fortnight of only thirteen days is told by Vyasa which occurred just before the great War. Such a fortnight comes at the interval of 22 years. Calculations show that at 5562nd B.C. Kshaya Paksha did occur. It had occurred 1962 and 1940. $1962 + 5562 = 7524$ is completely divisible by 22.

Amavasya confirmed

Krishna and Karna fixed the day of War on Amavasya (Udyog 142). Vyas also indicates in Bhishma 2 & 3 that the War started on the day second Amavasya, because two successive Amavasyas appeared then. Bhishma died on the day after 67 (58+9) nights from the onset of the War, on the occasion Uttarayan i.e. 22nd December. So the War must have commenced on 16th October. Let us see if Amavasya comes on this day.

In 1979, Amavasya was on 21st of October. Amavasyas repeat after the intervals of 29.53058 days. The Lunar year is of 354.367 days while the Solar year is 365.25 days. $1979 + 5561 = 7540$ multiplied by 365.25 and divided by 354.367 gives 7771.5616 Lunar years. 0.5616 Lunar year means 199.0125 days. 199.0125 divided by 29.53058 gives 6.7392005. This indicates that 6 Amavasyas are completed and 0.7392005 lunar month or 22 days are left. These 22 days are left for 21st October and we have to go behind up to 16th October. So adding these 6 days to 22 we get 28 days. After 28 days Amavasya can occur. After 29 days it always occurs. Thus on 15th and 16th October 5562nd year B.C, there were two successive amavasyas as mentioned by Vyas.

Another method gives the same conclusion. At the interval of 19 years the Amavasya falls on the same date. 19×365.25 divided by 29.53058 gives 235.00215. So in 19 years 235 Amavasyas are completed. I found that on 17th October 1963, there was an Amavasya. $1963 + 5561 = 7524$ divided by 19 gives 396. This division is complete, so there was an Amavasya. Thus it is established that Vyas has reported Amavasya correctly.

Eclipses

Vyas has mentioned that there was Solar as well as Lunar eclipses in one month at the time of Mahabharat War. Calculations confirm that in October 5561 year B.C, both the Solar and Lunar eclipses did occur. Rahu and Ketu were in Uttara Ashadha at 273 deg. & 279 deg. so total eclipse of the Sun took place on the Margashirsha Amavasya day Only 13 days earlier, according to Vyasa, there was Pournima with lunar eclipse, causing pallor of the Moon. Thirteen days earlier the sun would have been 13 deg. behind at $(279 - 13 =) 266$ in Purva Ashadha. It was Pournima so the Moon was diagonally opposite at $(266 - 180 =) 86$ deg. in Punarvasu, just beyond Mruga, so it was Margashirsha Pournima though it is wrongly or enigmatically told to be Kartika

Pournima. Rahu was at 273 deg., so Ketu was diagonally opposite in Punarvasu, so the ellipse of the moon was possible which was not total.

A Big comet

Vyas has mentioned that at the time of Mahabharat War a big comet was seen just beyond Pushya Nakshtra. There are many comets. Indian Astro- nomical works refer to more than 500 comets, but big comets are very few. Haley's comet is one of the big comets which comes at the regu- lar intervals of 77 years. It was seen in 1910 and 1987. If we add $1910+5561 = 7271$. 7271 is divisible completely by 77. Evidently it seems that it was Haley's comet was seen at the Mahabharat War.

Conclusion

All the twelve planets confirm their said positions on 16th October 5561 years B.C. along with two Amavasyas, two eclipses, Kshaya Paksha and a Comet. Thus, in all 18 mathematical positions fix the same date. Therefore, we have to accept this date of the Mahabharat War, if we want to be scientific. Please note that all the twelve planets will come in the same positions again only after 2229 crores of years. That means it will never happen again in the life of our earth, because life of the earth is only 400 crores of years. So the date of the Mahabharat War is pin-pointed as 16th October 5561 B.C.

APPENDIX

Hereunder is provided a short table dates of important Mahabharat events in years. (Dates and Tithis in years in Rama Samvat assuming Shri Rama Samvat 1st January. 1 equivalent to 1st Jan 7323 B.C. Rama's birth date has been conclusively proved to be 4th Dec. 7323 B.C.("*Vastav Ramayan*").

